

LISTING OF CLAIMS

No amendments are presented herein. However, to facilitate review of this Response, the Applicant provides the following listing of claims in the present application.

By way of overview, claims 1-15 and 17-50 are currently pending. More specifically, the status of the claims is indicated below:

- a) Claims 2-7, 10-15, 26, and 28 are original;
- b) Claim 1, 8, 9, 17-25, 27, and 29-50 were previously presented; and
- c) Claim 16 is canceled.

Listing of Claims

1. (Previously presented) A server system, comprising:
one or more computers;
an application executing on the computers to receive and process client requests;
and
a constraint system to constrain operation of the application according to multiple different constraints, the constraint system comprising a hierarchy of constraint layers, with each constraint layer containing a set of one or more constraints that customize operation of the application, wherein the constraint layers in the hierarchy have different respective priorities associated therewith.

2. (Original) A server system as recited in claim 1, wherein the hierarchy comprises a constraint layer that contains legally mandated constraints to constrain operation of application according to legal principles.

1 3. (Original) A server system as recited in claim 1, wherein the hierarchy
2 comprises a constraint layer that contains company-mandated constraints to constrain
3 operation of the application according to preferences of a company that operates the
4 application.

5
6 4. (Original) A server system as recited in claim 1, wherein the hierarchy
7 comprises a constraint layer that contains customer constraints to constrain operation of
8 the application according to preferences of customers.

9
10 5. (Original) A server system as recited in claim 1, wherein the hierarchy
11 comprises a constraint layer that contains cultural constraints to constrain operation of the
12 application according to cultural aspects.

13
14 6. (Original) A server system as recited in claim 1, wherein the hierarchy
15 comprises a constraint layer that contains end user constraints to constrain operation of
16 the application according to preferences of an end user.

17
18 7. (Original) A server system as recited in claim 1, wherein the constraint layers
19 are organized within the hierarchy such that a first constraint layer limits a second
20 constraint layer but the second constraint layer does not limit the first constraint layer.

21
22 8. (Previously presented) A server system as recited in claim 1, further comprising
23 a constraint resolver to resolve the constraint layers so that operation of the application is
24 constrained by a sum of the constraints in the layers, wherein the constraint resolver is
25

1 configured to reconcile any conflicts among constraints imposed by different constraint
2 layers.

3
4 9. (Previously presented) A server system comprising:
5 one or more computers; and
6 a multi-layer application executing on the computers to handle client requests, the
7 multi-layer application comprising:

8 a problem-solving logic layer to process the client requests according to an
9 associated problem domain, the problem-solving logic layer containing one or more
10 execution models to perform various sets of tasks when processing the client requests, the
11 problem-solving logic layer producing replies to the client requests;

12 a presentation layer to structure the replies produced by the problem-solving logic
13 layer in a manner that makes the replies presentable on various client devices; and

14 a constraint hierarchy of multiple constraint layers, each constraint layer
15 containing a set of one or more constraints that specify how the replies should be
16 structured to customize the replies for specific sets of conditions, wherein the constraint
17 layers in the hierarchy have different respective priorities associated therewith.

18
19 10. (Original) A server system as recited in claim 9, wherein constraint layers can
20 be selectively added or removed from the constraint hierarchy independently of other
21 layers in the multi-layer application to produce different sets of constraints.

22
23 11. (Original) A server system as recited in claim 9, wherein the constraint
24 hierarchy comprises a constraint layer that contains legally mandated constraints that
25

1 constrain the presentation layer to structure the replies to comply with certain legal
2 principles.

3
4 12. (Original) A server system as recited in claim 9, wherein the constraint
5 hierarchy comprises a constraint layer that contains company-mandated constraints that
6 constrain the presentation layer to structure the replies according to preferences of a
7 company that operates the application.

8
9 13. (Original) A server system as recited in claim 9, wherein the constraint
10 hierarchy comprises a constraint layer that contains customer-oriented constraints that
11 constrain the presentation layer to structure the replies according to preferences of
12 customers.

13
14 14. (Original) A server system as recited in claim 9, wherein the constraint
15 hierarchy comprises a constraint layer that contains cultural constraints that constrain the
16 presentation layer to structure the replies according to cultural aspects.

17
18 15. (Original) A server system as recited in claim 9, wherein the constraint
19 hierarchy comprises a constraint layer that contains end user constraints that constrain the
20 presentation layer to structure the replies according to preferences of end users.

21
22 16. (Canceled).

1 17. (Previously presented) One or more computer-readable media comprising
2 computer-executable instructions that, when executed, implement a computer software
3 architecture on one or more computers, the architecture comprising:

4 a constraint hierarchy of multiple constraint layers, each constraint layer
5 containing a set of one or more constraints that constrain operation of an application, the
6 constraint layers being organized within the constraint hierarchy such that a first
7 constraint layer limits a second constraint layer but the second constraint layer does not
8 limit the first constraint layer; and

9 a constraint resolver to resolve the constraint layers so that operation of the
10 application is constrained by a set of the constraints in the constraint layers, wherein the
11 constraint resolver is configured to reconcile any conflicts among constraints imposed by
12 different constraint layers.

13
14 18. (Previously presented) The one or more computer-readable media as recited in
15 claim 17, wherein constraint layers are selectively added to or removed from the
16 constraint hierarchy to form different sets of constraints on the operation of the
17 application.

18
19 19. (Previously presented) The one or more computer-readable media as recited in
20 claim 17, wherein the constraint hierarchy comprises a constraint layer that contains
21 legally mandated constraints to constrain operation of the application according to legal
22 principles.

23
24 20. (Previously presented) The one or more computer-readable media as recited in
25 claim 17, wherein the constraint hierarchy comprises a constraint layer that contains

1 company-mandated constraints to constrain operation of the application according to
2 preferences of a company that operates the application.

3
4 21. (Previously presented) The one or more computer-readable media as recited in
5 claim 17, wherein the constraint hierarchy comprises a constraint layer that contains
6 customer constraints to constrain operation of the application according to preferences of
7 customers.

8
9 22. (Previously presented) The one or more computer-readable media as recited in
10 claim 17, wherein the constraint hierarchy comprises a constraint layer that contains
11 cultural constraints to constrain operation of the application according to cultural aspects.

12
13 23. (Previously presented) The one or more computer-readable media as recited in
14 claim 17, wherein the constraint hierarchy comprises a constraint layer that contains end
15 user constraints to constrain operation of the application according to preferences of an
16 end user.

17
18 24. (Previously presented) A method implemented on one or more computers
19 comprising:

20 storing a hierarchy of constraints, each constraint being configured to constrain
21 operation of a server application, wherein the constraints in the hierarchy have different
22 respective priorities associated therewith; and

23 evaluating an operation of the server application in view of the hierarchy of
24 constraints to modify operation according to the constraints in the hierarchy.

1 25. (Previously presented) A method as recited in claim 24, further comprising
2 adding or removing constraints from the hierarchy to alter the server application.

3
4 26. (Original) A method as recited in claim 24, wherein the hierarchy of
5 constraints comprises constraints selected from a group of constraints comprising:

6 legally mandated constraints to constrain operation of the application according to
7 legal principles;

8 company-mandated constraints to constrain operation of the application according
9 to preferences of a company that operates the application;

10 customer constraints to constrain operation of the application according to
11 preferences of customers;

12 cultural constraints to constrain operation of the application according to cultural
13 aspects; and

14 end user constraints to constrain operation of the application according to
15 preferences of an end user.

16
17 27. (Previously presented) A method for operating a server application,
18 comprising:

19 receiving requests from multiple clients;

20 processing the requests to produce replies;

21 structuring the reply to define how the reply will appear when presented at the
22 client; and

23 constraining said structuring according to a hierarchy of plural constraints to
24 customize appearance of the reply, wherein the constraints in the hierarchy have different
25 respective priorities associated therewith, the constraints comprising one or more of:

1 legally mandated constraints to constrain appearance of the reply according to
2 legal principles;

3 company-mandated constraints to constrain appearance of the reply according to
4 preferences of a company that operates the application;

5 customer constraints to constrain appearance of the reply according to preferences
6 of customers;

7 cultural constraints to constrain appearance of the reply according to cultural
8 aspects; and

9 end user constraints to constrain appearance of the reply according to preferences
10 of an end user.

11
12 28. (Original) A method as recited in claim 27, further comprising adding or
13 removing constraints to change the set of constraints being applied to the structuring of
14 the reply.

15
16 29. (Previously presented) One or more computer-readable media comprising
17 computer-executable instructions that, when executed, direct an application server to:

18 generate replies in response to client requests; and

19 structure the replies according to a hierarchy of constraints to customize the
20 replies, wherein the constraints in the hierarchy have different respective priorities
21 associated therewith, the constraints comprising a combination of one or more following
22 constraints:

23 legally mandated constraints to constrain appearance of a reply according to legal
24 principles;

1 company-mandated constraints to constrain appearance of the reply according to
2 preferences of a company that operates the application;
3 customer constraints to constrain appearance of the reply according to preferences
4 of customers;
5 cultural constraints to constrain appearance of the reply according to cultural
6 aspects; and
7 end user constraints to constrain appearance of the reply according to preferences
8 of an end user.

9
10 30. (Previously presented) A server system as recited in claim 1, wherein the
11 constraints are expressed as metadata.

12
13 31. (Previously presented) A server system as recited in claim 1, wherein the
14 constraints of one constraint layer can have the effect of overriding the constraints of
15 another, lower, constraint layer.

16
17 32. (Previously presented) A server system as recited in claim 1, wherein the
18 constraints define presentation aspects of a reply sent to a customer.

19
20 33. (Previously presented) A server system as recited in claim 1, wherein each
21 constraint layer represents a different source entity that customizes the application.

22
23 34. (Previously presented) A server system as recited in claim 9, wherein each
24 constraint layer represents a different source entity that customizes the application.
25

1 35. (Previously presented) The one or more computer-readable media as recited in
2 claim 17, wherein each constraint layer represents a different source entity that
3 customizes the application.
4

5 36. (Previously presented) A method as recited in claim 24, wherein the hierarchy
6 includes multiple constraint layers, and wherein each constraint layer represents a
7 different source entity that customizes the application.
8

9 37. (Previously presented) A method as recited in claim 27, wherein the
10 constraints are associated with a hierarchy having multiple constraint layers, and wherein
11 each constraint layer represents a different source entity that customizes the application.
12

13 38. (Previously presented) The one or more computer-readable media of claim 29,
14 wherein the hierarchy includes multiple constraint layers, and wherein each constraint
15 layer represents a different source entity that customizes the application.
16

17 39. (Previously presented) A server system as recited in claim 1, wherein the
18 hierarchy comprises each of:

19 a constraint layer that contains legally mandated constraints to constrain operation
20 of application according to legal principles;

21 a constraint layer that contains company-mandated constraints to constrain
22 operation of the application according to preferences of a company that operates the
23 application;

24 a constraint layer that contains customer constraints to constrain operation of the
25 application according to preferences of customers;

1 a constraint layer that contains cultural constraints to constrain operation of the
2 application according to cultural aspects;

3 a constraint layer that contains end user constraints to constrain operation of the
4 application according to preferences of an end user.

5
6 40. (Previously presented) A server system as recited in claim 9, wherein the
7 constraint hierarchy comprises each of:

8 a constraint layer that contains legally mandated constraints that constrain the
9 presentation layer to structure the replies to comply with certain legal principles;

10 a constraint layer that contains company-mandated constraints that constrain the
11 presentation layer to structure the replies according to preferences of a company that
12 operates the application;

13 a constraint layer that contains customer-oriented constraints that constrain the
14 presentation layer to structure the replies according to preferences of customers;

15 a constraint layer that contains cultural constraints that constrain the presentation
16 layer to structure the replies according to cultural aspects; and

17 a constraint layer that contains end user constraints that constrain the presentation
18 layer to structure the replies according to preferences of end users.

19
20 41. (Previously presented) The one or more computer-readable media as recited in
21 claim 17, wherein the constraint hierarchy comprises each of:

22 a constraint layer that contains legally mandated constraints to constrain operation
23 of the application according to legal principles;

1 a constraint layer that contains company-mandated constraints to constrain
2 operation of the application according to preferences of a company that operates the
3 application;

4 a constraint layer that contains customer constraints to constrain operation of the
5 application according to preferences of customers;

6 a constraint layer that contains cultural constraints to constrain operation of the
7 application according to cultural aspects; and

8 a constraint layer that contains end user constraints to constrain operation of the
9 application according to preferences of an end user.

10
11 42. (Previously presented) A method as recited in claim 24, wherein the hierarchy
12 of constraints comprises each of:

13 legally mandated constraints to constrain operation of the application according to
14 legal principles;

15 company-mandated constraints to constrain operation of the application according
16 to preferences of a company that operates the application;

17 customer constraints to constrain operation of the application according to
18 preferences of customers;

19 cultural constraints to constrain operation of the application according to cultural
20 aspects; and

21 end user constraints to constrain operation of the application according to
22 preferences of an end user.

23
24 43. (Previously presented) A method as recited in claim 27, wherein the
25 constraints comprise each of the legally mandated constraints, the company-mandated

1 constraints, the customer constraints, the cultural constraints, and the end user
2 constraints.

3
4 44. (Previously presented) The one or more computer-readable media of claim 29,
5 wherein the constraints comprise each of the legally mandated constraints, the company-
6 mandated constraints, the customer constraints, the cultural constraints, and the end user
7 constraints.

8
9 45. (Previously presented) A server system as recited in claim 39, wherein the
10 constraint hierarchy orders the constraints from highest priority to lowest priority in an
11 order defined by: 1) the legally mandated constraints; 2) the company-mandated
12 constraints; 3) the customer constraints; 4) the cultural constraints; and 5) the end user
13 constraints.

14
15 46. (Previously presented) A server system as recited in claim 40, wherein the
16 constraint hierarchy orders the constraints from highest priority to lowest priority in an
17 order defined by: 1) the legally mandated constraints; 2) the company-mandated
18 constraints; 3) the customer constraints; 4) the cultural constraints; and 5) the end user
19 constraints.

20
21 47. (Previously presented) The one or more computer-readable media as recited in
22 claim 41, wherein the constraint hierarchy orders the constraints from highest priority to
23 lowest priority in an order defined by: 1) the legally mandated constraints; 2) the
24 company-mandated constraints; 3) the customer constraints; 4) the cultural constraints;
25 and 5) the end user constraints.

1
2 48. (Previously presented) A method as recited in claim 42, wherein the constraint
3 hierarchy orders the constraints from highest priority to lowest priority in an order
4 defined by: 1) the legally mandated constraints; 2) the company-mandated constraints; 3)
5 the customer constraints; 4) the cultural constraints; and 5) the end user constraints.

6
7 49. (Previously presented) A method as recited in claim 43, wherein the constraint
8 hierarchy orders the constraints from highest priority to lowest priority in an order
9 defined by: 1) the legally mandated constraints; 2) the company-mandated constraints; 3)
10 the customer constraints; 4) the cultural constraints; and 5) the end user constraints.

11
12 50. (Previously presented) The one or more computer-readable media of claim 44,
13 wherein the constraint hierarchy orders the constraints from highest priority to lowest
14 priority in an order defined by: 1) the legally mandated constraints; 2) the company-
15 mandated constraints; 3) the customer constraints; 4) the cultural constraints; and 5) the
16 end user constraints.